

For the month as a whole the temperature averages were above the normal in practically all portions of the country, and markedly so over the more interior districts where locally it was the warmest February of record.

PRECIPITATION.

The heavy rains during the latter part of the first decade and the first few days of the second decade from Arkansas and portions of adjoining States eastward to the Carolinas, and about the end of the second decade over much of the same district, carried the totals for the month somewhat above normal, and rather frequent precipitation over the Pacific coast, particularly in Oregon and Washington, gave monthly amounts slightly above normal over portions of those States. In practically all other portions of the country the precipitation was below normal, and in parts of Arizona the lack of precipitation, either rain or snow, following other months of dry weather caused a serious scarcity of water, and considerable loss of stock resulted.

SNOWFALL.

The monthly amounts of snowfall were nearly everywhere less than normal, although in a few localities heavy falls were reported. On the 18th and 19th heavy snows for the region occurred from the Panhandle of Texas northeastward and eastward over portions of Oklahoma, Arkansas, and adjoining States, the falls in some cases, particularly in eastern Oklahoma and central Arkansas, being the greatest ever known. The same storm developed considerable energy along the Atlantic coast and snow was general from the Ohio Valley to New England, the falls being unusually heavy in portions of southern New England.

The snow on the ground throughout the month was much less than is usual for the closing month of winter. This was particularly the case in the Great Lake region, where the lack of a sufficient snow cover greatly hampered logging operations, and much loss was sustained thereby. As stated elsewhere in this issue, the snowfall was usually

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STORMS AND WARNINGS. WEATHER AND CROPS.

STORMS AND WEATHER WARNINGS.

Washington forecast district.—The first storm warnings of the month were issued on the 10th for the Atlantic coast from Cape Hatteras to Eastport, Me., in connection with a disturbance that moved rapidly northeastward from the lower Mississippi Valley to the Canadian Maritime Provinces with a marked increase in intensity. These warnings were fully verified along the New England coast.

On the 16th–17th a storm of marked intensity moved directly eastward from Lake Superior to the lower St. Lawrence Valley, and warnings were displayed from Norfolk, Va., to Boston, Mass. They were well verified.

A disturbance of slight intensity which was central over southern Louisiana at 8 a. m. of the 19th moved rapidly northeastward to southeastern Virginia during the ensuing 24 hours with increasing intensity, thence directly northeastward over the ocean to the vicinity of Sable Island, where it was centered as a storm of marked strength at 8 a. m. of the 21st. This storm was attended by northeast and north gales along the Atlantic coast from Cape Henry northward, and a maximum wind velocity of 68 miles an hour from the northeast was regis-

light in the western mountain districts, but only in the more southern portions is the outlook for a good supply of water discouraging.

ICE.

Ice in the rivers and harbors continued of small volume, particularly on the lower Lakes. At Detroit the river was open the entire month, with little interruption to ferry traffic, and similar conditions prevailed at Buffalo. The Connecticut River from Hartford to the Sound was open and navigation between that point and New York was possible during the entire month, a condition hitherto unknown.

Ice of excellent quality was harvested over most northern districts, but farther south the supply was limited, and in many districts where it is usually gathered the winter closed without any formation sufficiently thick to permit of economical gathering.

RELATIVE HUMIDITY.

East of the Mississippi River and over the northern half of the Pacific coast region, the relative humidity was above the normal, harmonizing in a measure with the regions having fairly heavy precipitation during the month. Elsewhere it was less than is usual for February, although in many instances excesses occurred, especially during the morning hours. The deficiencies were rather marked in portions of the Rocky Mountain, western Plains, and the southern half of the Plateau regions, as would be expected from the almost complete absence of precipitation in these regions during the month.

LOCAL STORMS.

Georgia.—Severe storms having some tornado characteristics, occurred on the 10th. Twenty-eight lives were lost at Gardner, and considerable damage to property occurred at that and other points in the vicinity.

Tennessee.—A tornado of small proportions occurred near Trezevant on the 16th, but without material damage.

tered at Nantucket, Mass. Warnings were displayed well in advance of this storm.

Storm warnings were ordered displayed from Norfolk, Va., to Boston, Mass., on the 21st; from Norfolk, Va., to Eastport, Me., on the 23d; and from Delaware Breakwater to Portland, Me., on the 26th. These warnings were not well verified.

The last storm warnings of the month were issued at 9:30 p. m. on the 27th for the north Atlantic coast in connection with a disturbance that developed off the middle Atlantic coast on that date and moved rapidly northeastward. These warnings were fully verified.

Small-craft warnings were issued for the east Gulf coast on the 19th, and special forecasts of strong winds were sent to open ports on Lake Michigan on the 15th, 16th, 25th, and 26th.

No cold-wave warnings were issued during the month, except for limited areas, as follows:

14th and 17th.—Northern portions of Maine, New Hampshire, and Vermont and extreme northern New York.

19th.—Extreme southern portions of Alabama and Mississippi and extreme northwestern Florida.

20th.—Extreme northwestern Florida, southern Georgia, and the South Carolina coast.

23d.—Northeastern Michigan.

Heavy-snow warnings were issued at 9:30 p. m. on the 19th for New York, Pennsylvania, eastern and southern Ohio, northern West Virginia, and western Maryland, and for New England the following morning. Heavy snow occurred over nearly the entire area for which it was forecast, and there was a foot or more of snow over a considerable area.

Frost warnings were issued for the south Atlantic coast, northern and central Florida, and the southern portions of Alabama and Mississippi on the 20th and 25th, and for Alabama, southern Mississippi, and extreme northwestern Florida on the 23d. However, no damaging frosts occurred during the month in these sections.—*Charles L. Mitchell.*

WARNINGS IN OTHER DISTRICTS.

Chicago forecast district.—The month, as a whole, throughout the forecast district, was remarkably warm and dry.

No general cold wave swept the district during the entire month and special warnings issued were confined to a few local cold-wave warnings and advices to live-stock interests.

Because of the open winter, stock on the ranges is generally in fine condition. Transportation at any time has not met with any material interruption, and the handling of perishable goods, so far as precipitation and cold are concerned, has been easy. However, greater care has been taken than is usual during the winter season in the shipment of perishables affected by heat. During most of the season shipments of fish throughout this area have had to be made in iced refrigerator cars, whereas as a rule during the cold winter when the temperature averages considerably below freezing, the shipment is made in ordinary box cars.

The ice industry has also been seriously affected by the mild weather and the managers have been hard put in their endeavors to lay in a supply. The reserves of ice left over from the previous season, as well as the artificial ice, will have to be largely depended upon during the coming season.

With the assistance of the Alaskan reports, the forecaster has been able to furnish daily to shippers information covering several days in advance as regards probable temperature conditions. These advices have been considered invaluable by the interested parties.—*H. J. Cox.*

New Orleans forecast district.—Warnings were issued for this forecast district as follows:

Northwest storm warnings were ordered for the Texas coast 9:00 a. m. February 19 and verifying velocities occurred at most stations. Small-craft warnings were displayed on the Texas coast on February 6, 7, and 15 and on the Louisiana coast on the 19th.

Cold weather for the season prevailed over the district from the 18th to 20th. Cold-wave warnings were ordered on the 18th for east Texas except the northwest portion

and were repeated on the morning of the 19th to the Texas coast stations and southern Louisiana. The warnings were generally justified.

Warnings for injurious temperatures were issued for the sugar and trucking regions on the 19th, 20th, 21st, and 23d.

Live-stock warnings were issued for Oklahoma, Arkansas, and east Texas on the 19th.

Fire-weather warnings were issued for Oklahoma and Arkansas on the 15th.—*I. M. Cline.*

Denver forecast district.—The temperature during the month was, for the most part, considerably above the normal, and the precipitation was light and infrequent. Except at Durango, where the verifying limit was just reached on the morning of the 16th, no cold waves occurred, and no warnings of any kind were issued, aside from the advices in the regular forecasts.

A storm of considerable intensity which appeared on the coast of Oregon on the 4th and moved southeastward was attended by light but general precipitation between that date and the 7th, when the disturbance reached the Gulf coast. Another low that was first noted over western Oregon on the 12th moved across Wyoming on the 15th, attended on the latter date by light snow in Utah, western Colorado, and northern Arizona. The passage of the storm was followed by a sharp fall in temperature. A third disturbance advanced from the north Pacific coast across Wyoming and Colorado between the 19th and 21st and was accompanied by light snow or rain in Arizona, Utah, and Colorado.—*J. M. Sherier.*

San Francisco forecast district.—February was a rather stormy month in the northern and central portions of this district, especially north of Cape Mendocino; and particularly so during the first half of the month. As in January, the pressure continued high over Alaska during the first and second decades, which forced the storm movement well to the south, causing rain and snow frequently from central California northward.

During the month storm warnings were ordered 15 times, and advisory warnings were issued 5 times. Most of the warnings were verified, at least partially so, and vessel reports showed that stormy weather prevailed at sea when coast stations did not report verifying velocities.

On the 20th a heavy local rain caused flood conditions in the Eel River valley and Humboldt Bay sections, doing considerable damage to roads and telegraph and telephone lines.

During the gale on the night of the 4-5th, the steam-schooner *Klamath* was wrecked on Fish Rock, which is a few miles south of Point Arena, and was a complete loss. The passengers and crew, 55 in all, were saved.

A warm wave spread over southern California and southern Nevada on the 24th and 25th, and previous high temperature records for February were broken at many stations.

Warnings of heavy or killing frosts were issued seven times in California during the month, and were verified, but at no time did the temperature fall low enough to do serious damage to crops.—*G. H. Willson.*